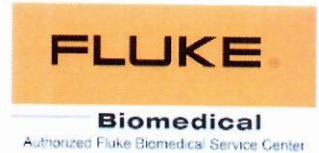




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Certificate of Calibration

ASSET NUMBER: **J000325**
MANUFACTURER: **Fluke Biomedical**
MODEL NUMBER: **ProSim 8**
SERIAL NUMBER: **3025004**
DESCRIPTION: **Vital Signs Simulator**

CUSTOMER INFORMATION
Royal Clinics
Riyadh
Saudi Arabia

PROCEDURE USED: **ProSim 8 VER - Exp Unc WW**
CALIBRATED BY: **Joori Alsanounah**
TEMPERATURE: **23 °C**
HUMIDITY: **40 %rh**

CALIBRATION DATE: **21 Jan 2025**
REQUESTED RECALIBRATION DATE: **21 Jan 2026**
AS-FOUND STATUS: **In Tolerance**
AS-LEFT STATUS: **In Tolerance**

Report Number: **2025000040**

The issuing organization certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure unless otherwise noted. It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Physical Laboratory or other national metrology institutes.

Although the item calibrated may meet specification and performance criteria at the time of calibration, due to any number of factors the recommended due date of this item does not imply continuing conformance to specifications during the recommended interval.

This report may contain results of tests for which no traceable calibration standard exists, such as oxygen saturation (SpO₂). These tests are conducted using in-house performance standards and accepted test procedures.

Any Test Uncertainty Ratio (TUR) that is less than four-to-one will appear under the "TUR" heading on the data record. If the TUR meets or exceeds four-to-one, the field is left blank. Test status is PASS unless noted otherwise.

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REMARKS:

APPROVED BY:

Technical Manager

STANDARDS USED

ID	Description	Due Date
J44	Isolated Pressure Sensor	07 May 2025
J52	AC/DC Differential Amplifier	11 Oct 2025
J67	Isolated Pressure Sensor	07 May 2025
J72	DC Power Supply	05 Jun 2025
J91	Data Acquisition / Multimeter System	26 Apr 2026

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MODEL NUMBER: ProSim 8 SERIAL NUMBER: 3025004

TEST RESULTS: IN TOLERANCE

Test Description	Expected Value	Measured Value	Lower Limit	Upper Limit	Units	Status	TUR
UUT is PROSIM8,2.02.01, SN:3025004							
Battery State: 37%, Charging							
Keypad Tests							
Beeper Volume Level Tests							
LCD Display Tests							
HOST USB Port Functionality							
ECG WAVEFORM VERIFICATION							
Sine Wave							
60.00 Hz	60.00	59.991	59.400	60.600	Hz		
Square Wave							
2.5000 Hz	2.5000	2.49976	2.47500	2.52500	Hz		
Triangle Wave							
2.5000 Hz	2.5000	2.49808	2.47500	2.52500	Hz		
HIGH LEVEL ECG OUTPUT AMPLITUDE ACCURACY							
2.50 Vp-p @ 60 Hz	2.500	2.47	2.38	2.62	Vp-p		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD I (LA-RA)							
1.0000 mV	1.00000	0.9989	0.9300	1.0700	mV		
-0.1000 mV	-0.10000	-0.0987	-0.1520	-0.0480	mV		
-50.000 mV	-50.0000	-49.994	-55.400	-44.600	mV		
500.000 mV	500.0000	500.216	449.600	550.400	mV		
10:1 Attenuator	10.0000	10.150	9.700	10.300			2.9
Respiration Resistance Base Levels							
500.0 Ohm	500.00	495.6	475.0	525.0	Ohm		
1000.0 Ohm	1000.00	1000.2	950.0	1050.0	Ohm		
1500.0 Ohm	1500.00	1506.1	1425.0	1575.0	Ohm		
2000 Ohm	2000.0	2010	1900	2100	Ohm		
Respiration Resistance Change							
5.000 Ohm	5.0000	4.982	4.650	5.350	Ohm		
1.000 Ohm	1.0000	0.997	0.850	1.150	Ohm		
0.100 Ohm	0.1000	0.102	-0.005	0.205	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD II (LL-RA)							
3.0000 mV	3.00000	2.9972	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.2970	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.161	-73.700	-66.300	mV		
700.00 mV	700.000	700.02	664.80	735.20	mV		
10:1 Attenuator	10.0000	10.073	9.700	10.300			2.9
Respiration Resistance Base Levels							
500.0 Ohm	500.00	500.5	475.0	525.0	Ohm		
1000.0 Ohm	1000.00	1005.4	950.0	1050.0	Ohm		
1500.0 Ohm	1500.00	1510.2	1425.0	1575.0	Ohm		
2000 Ohm	2000.0	2016	1900	2100	Ohm		
Respiration Resistance Change							
5.000 Ohm	5.0000	4.981	4.650	5.350	Ohm		

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MODEL NUMBER: ProSim 8 SERIAL NUMBER: 3025004

TEST RESULTS: IN TOLERANCE

Test Description	Expected Value	Measured Value	Lower Limit	Upper Limit	Units	Status	TUR
1.000 Ohm	1.0000	0.997	0.850	1.150	Ohm		
0.100 Ohm	0.1000	0.099	-0.005	0.205	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD III (LL-LA)							
2.0000 mV	2.00000	1.9985	1.9100	2.0900	mV		
-0.2000 mV	-0.20000	-0.1980	-0.2540	-0.1460	mV		
-20.000 mV	-20.0000	-20.174	-22.400	-17.600	mV		
200.000 mV	200.0000	199.782	179.600	220.400	mV		
10:1 Attenuator	10.0000	10.055	9.700	10.300			2.9
Respiration Resistance Base Levels							
500.0 Ohm	500.00	498.3	475.0	525.0	Ohm		
1000.0 Ohm	1000.00	1003.7	950.0	1050.0	Ohm		
1500.0 Ohm	1500.00	1507.5	1425.0	1575.0	Ohm		
2000 Ohm	2000.0	2013	1900	2100	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V1-RL							
3.0000 mV	3.00000	2.9990	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3004	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.490	-77.400	-62.600	mV		
700.00 mV	700.000	699.80	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.088	9.700	10.300			2.9
Respiration Resistance Base Levels							
1000.0 Ohm	1000.00	997.9	950.0	1050.0	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V2-RL							
3.0000 mV	3.00000	3.0088	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3000	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.379	-77.400	-62.600	mV		
700.00 mV	700.000	699.89	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.124	9.700	10.300			2.9
Respiration Resistance Base Levels							
1000.0 Ohm	1000.00	1000.1	950.0	1050.0	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V3-RL							
3.0000 mV	3.00000	2.9993	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3002	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.415	-77.400	-62.600	mV		
700.00 mV	700.000	699.87	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.057	9.700	10.300			2.9
Respiration Resistance Base Levels							
1000.0 Ohm	1000.00	999.0	950.0	1050.0	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V4-RL							
3.0000 mV	3.00000	2.9995	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3000	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.399	-77.400	-62.600	mV		
700.00 mV	700.000	699.88	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.124	9.700	10.300			2.9
Respiration Resistance Base Levels							

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MODEL NUMBER: ProSim 8 SERIAL NUMBER: 3025004

TEST RESULTS: IN TOLERANCE

Test Description	Expected Value	Measured Value	Lower Limit	Upper Limit	Units	Status	TUR
1000.0 Ohm	1000.00	1001.2	950.0	1050.0	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V5-RL							
3.0000 mV	3.00000	2.9985	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3014	-0.3560	-0.2440	mV		
-70.00 mV	-70.000	-70.39	-77.40	-62.60	mV		
700.00 mV	700.000	699.93	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.075	9.700	10.300			2.9
Respiration Resistance Base Levels							
1000.0 Ohm	1000.00	999.8	950.0	1050.0	Ohm		
ECG OUTPUT AMPLITUDE ACCURACY - LEAD V6-RL							
3.0000 mV	3.00000	2.9947	2.8900	3.1100	mV		
-0.3000 mV	-0.30000	-0.3015	-0.3560	-0.2440	mV		
-70.000 mV	-70.0000	-70.390	-77.400	-62.600	mV		
700.00 mV	700.000	699.87	629.60	770.40	mV		
10:1 Attenuator	10.0000	10.064	9.700	10.300			2.9
Respiration Resistance Base Levels							
1000.0 Ohm	1000.00	998.5	950.0	1050.0	Ohm		
SIMULATED IBP VERIFICATION - CHANNEL #1							
Sensitivity: 5uV/V/mmHg							
30 mmHg Range							
0.00 mmHg	0.000	0.06	-1.00	1.00	mmHg		
-10.00 mmHg	-10.000	-9.99	-11.10	-8.90	mmHg		
20.00 mmHg	20.000	20.15	18.80	21.20	mmHg		
300 mmHg Range							
0.00 mmHg	0.000	-0.04	-1.00	1.00	mmHg		
50.00 mmHg	50.000	50.19	48.50	51.50	mmHg		
100.00 mmHg	100.000	100.45	98.00	102.00	mmHg		
200.00 mmHg	200.000	200.94	197.00	203.00	mmHg		
300.00 mmHg	300.000	301.39	296.00	304.00	mmHg		
0.00 mmHg	0.000	-0.04	-1.00	1.00	mmHg		
Sensitivity: 40uV/V/mmHg							
30 mmHg Range							
0.00 mmHg	0.000	-0.01	-1.00	1.00	mmHg		
-10.00 mmHg	-10.000	-9.96	-11.10	-8.90	mmHg		
20.00 mmHg	20.000	19.91	18.80	21.20	mmHg		
300 mmHg Range							
0.00 mmHg	0.000	-0.10	-1.00	1.00	mmHg		
50.00 mmHg	50.000	49.72	48.50	51.50	mmHg		
100.00 mmHg	100.000	99.53	98.00	102.00	mmHg		
200.00 mmHg	200.000	199.11	197.00	203.00	mmHg		
300.00 mmHg	300.000	298.73	296.00	304.00	mmHg		
0.00 mmHg	0.000	-0.10	-1.00	1.00	mmHg		
SIMULATED IBP VERIFICATION - CHANNEL #2							
Sensitivity: 5uV/V/mmHg							

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MODEL NUMBER: ProSim 8 SERIAL NUMBER: 3025004

TEST RESULTS: IN TOLERANCE

Test Description	Expected Value	Measured Value	Lower Limit	Upper Limit	Units	Status	TUR
30 mmHg Range							
0.00 mmHg	0.000	0.08	-1.00	1.00	mmHg		
-10.00 mmHg	-10.000	-9.91	-11.10	-8.90	mmHg		
20.00 mmHg	20.000	20.04	18.80	21.20	mmHg		
300 mmHg Range							
0.00 mmHg	0.000	-0.11	-1.00	1.00	mmHg		
50.00 mmHg	50.000	49.79	48.50	51.50	mmHg		
100.00 mmHg	100.000	99.74	98.00	102.00	mmHg		
200.00 mmHg	200.000	199.60	197.00	203.00	mmHg		
300.00 mmHg	300.000	299.44	296.00	304.00	mmHg		
0.00 mmHg	0.000	-0.12	-1.00	1.00	mmHg		
Sensitivity: 40uV/mmHg							
30 mmHg Range							
0.00 mmHg	0.000	-0.02	-1.00	1.00	mmHg		
-10.00 mmHg	-10.000	-10.05	-11.10	-8.90	mmHg		
20.00 mmHg	20.000	20.04	18.80	21.20	mmHg		
300 mmHg Range							
0.00 mmHg	0.000	-0.21	-1.00	1.00	mmHg		
50.00 mmHg	50.000	49.93	48.50	51.50	mmHg		
100.00 mmHg	100.000	100.08	98.00	102.00	mmHg		
200.00 mmHg	200.000	200.38	197.00	203.00	mmHg		
300.00 mmHg	300.000	300.68	296.00	304.00	mmHg		
0.00 mmHg	0.000	-0.21	-1.00	1.00	mmHg		
TEMPERATURE VERIFICATION							
YSI Series 400							
30 degC	1815.400	1813.88	1785.80	1845.00	Ohm		
35 degC	1471.400	1470.66	1447.20	1495.60	Ohm		
40 degC	1200.400	1197.41	1180.70	1220.10	Ohm		
42 degC	1107.400	1107.51	1089.80	1125.00	Ohm		
YSI Series 700 T1							
30 degC	4834.000	4831.39	4655.60	5012.40	Ohm		
35 degC	3918.000	3910.88	3790.00	4046.00	Ohm		
40 degC	3196.000	3191.15	3144.40	3247.60	Ohm		
42 degC	2950.000	2946.91	2903.20	2996.80	Ohm		
YSI Series 700 T2							
30 degC	24270.00	24276.0	23874.0	24666.0	Ohm		
35 degC	19740.00	19736.2	19418.0	20062.0	Ohm		
40 degC	16150.00	16144.0	15954.0	16346.0	Ohm		
42 degC	14920.00	14934.5	14686.0	15154.0	Ohm		
CARDIAC OUTPUT VERIFICATION							
34 degC	15584.00	15583.3	15479.0	15689.0	Ohm		
35 degC	15057.00	15053.1	14952.0	15162.0	Ohm		
36 degC	14530.00	14529.5	14425.0	14635.0	Ohm		
37 degC	14004.00	13998.7	13899.0	14109.0	Ohm		
38 degC	13477.00	13475.0	13372.0	13582.0	Ohm		

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MODEL NUMBER: **ProSim 8** SERIAL NUMBER: **3025004**TEST RESULTS: **IN TOLERANCE**

Test Description	Expected Value	Measured Value	Lower Limit	Upper Limit	Units	Status	TUR
PRESSURE LEAK TEST							
0.00 mmHg/min	0.000	0.40	0.00	2.00	mmHg/min		
STATIC PRESSURE VERIFICATION							
0.00 mmHg	0.013	-0.27	-0.49	0.51	mmHg		2.9
50.00 mmHg	51.130	50.90	50.37	51.89	mmHg		
100.00 mmHg	101.270	101.10	100.26	102.28	mmHg		
200.00 mmHg	201.340	201.07	199.83	202.85	mmHg		
300.00 mmHg	301.193	300.53	299.19	303.20	mmHg		
350.00 mmHg	351.603	350.90	349.35	353.86	mmHg		
400.00 mmHg	401.683	400.80	399.17	404.19	mmHg		
300.00 mmHg	302.193	301.63	300.18	304.20	mmHg		
100.00 mmHg	102.090	101.87	101.08	103.10	mmHg		
0.00 mmHg	0.000	-0.30	-0.50	0.50	mmHg		2.9
PULSE DISPLACEMENT VERIFICATION							
Measured Displacement >1.50 mmHg							
PROSIM SPOT PROBE VERIFICATION							
UUT tested with ProSim SPOT Module S/N: 5507519							
SpO2 Type: NELLCOR							
97 %SpO2, 130 bpm							
97 %SpO2	97	97.0	92.0	102.0	%SpO2		
130 bpm	130	130.0	127.0	133.0	bpm		
85 %SpO2, 30 bpm							
85 %SpO2	85	85.0	78.0	92.0	%SpO2		
30 bpm	30	30.0	27.0	33.0	bpm		
WIRELESS COMMUNICATIONS TEST (Zigbee)							
UUT Communicates Over Wireless Interface							
Cal Info SN: 3025004, CAL DATE: 2025/01/21							

*** END_OF_REPORT ***

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